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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH

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Dear Sir:

Special laboratory for nuclear weapons research, to be constructed at Kirtland Air Force Base, N.M., is now open for bids by interested contractors. Under invitation ENG-29-005-57-31, bids will be received by engineer corps, U. S. Army, P.O. Box 1538, Albuquerque, N.M., for construction of building to house this laboratory. Bid closing date is Nov. 30. (Other BIDS ASKED, CONTRACTS AWARDED, p. 4 this LETTER.)

Interim financing by Yankee Atomic Electric Co. is proposed under petition the company has made to Massachusetts Department of Public Utilities. Yankee wants authority to issue $500,000 of common stock and $500,000 in notes, with proceeds to be used for initial phases of its $35 million nuclear power plant. Balance of the estimated cost will be supplied by additional offerings. The new issues will be bought by the 12 New England electric utilities which comprise Yankee, in a ratio proportionate to their present holdings in the company. (Other FINANCIAL NEWS, p. 3 this LETTER.)

New solvent extraction installation for recovery of uranium, now on stream at Shiprock, N.M., uranium ore concentrating plant of Kerr-McGee Oil Industries, Inc., is said to be first continuous unit of its type to go into full production on the Colorado Plateau. The firm reports uranium recoveries averaging better than 99.8%. (Other RAW MATERIALS news, p. 4 this LETTER.)

Offered by its manufacturer as particularly suitable for radioactive shielding applications, Leadcast is a new lead-plastic compound containing 95% lead but said to have greater structural rigidity and to be harder than pure lead. Producer, Telectro Industries Corp., 35-18 37th St., Long Island City, N.Y., says Leadcast may be molded into any shape with a tolerance of plus-or-minus 0.005-in., that it is inert to oxidation, and that its surface requires no finishing. (Other PRODUCT, PROCESS, INSTRUMENT news, p. 5 this LETTER.)

The U. S. Government-owned heavy water plant at Trail, British Columbia, Canada, has been bought by Consolidated Mining & Smelting Co., of Canada (which is controlled by Canadian Pacific Railway Co.). Price paid for the plant has not been disclosed; it had been built in 1942 for a reported $2.8 million and operated by Consolidated for the U. S. during World War II. More efficient heavy water plants are now in operation in the U. S. to supply the USAEC. Some of the heavy water plant equipment at Trail will be adapted for the production of hydrogen which the company uses in the manufacture of fertilizers. (Other BUSINESS NEWS, p. 2 this LETTER.)

An international agency to promote the commercial uses of nuclear energy has been established within the United Nations structure by unanimous votes of representatives of 82 nations, assembled in conference last week in New York. The statute for the world atomic body provides that it will act as banker and broker to provide fissionable materials and technical skills to nations seeking nuclear development projects. The agency will assist in setting up laboratories and plants for nuclear projects, will inspect operations, and establish standards of health and safety. Provision against diversion of materials for weapons manufacture is also provided.

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ATOMIC ENERGY BUSINESS NEWS...

PUBLIC HEARINGS TO BE HELD ON NUCLEAR PLANT CONSTRUCTION PERMIT:- In the first such proceeding of its kind, public hearings are to be held on a nuclear power plant construction permit after the permit has been issued. The hearings will begin Nov. 13th, in Washington, D.C., on Power Reactor Development Co.'s $40 million, 100,000 electrical kw. fast breeder nuclear power plant now under construction at Monroe, Mich. (PRDC's conditional construction permit, which was contingent upon satisfactory solution to a number of safety problems connected with the fast breeder reactor, contained a clause giving the public 30-days to file objections to the project. Three labor unions filed protests with the USAEC, contending that, in the light of present knowledge, operation of the reactor at Monroe would be a public hazard. Jay A. Kyle, assistant chief hearing examiner of the Federal Communications Commission, will conduct the hearings.)

NUCLEAR POWERED LOCOMOTIVE UNDER STUDY:- Walter Kidde Nuclear Laboratories, Inc., Garden City, N.Y., will make certain studies of locomotive propulsion, using a nuclear reactor, under contract from Baldwin-Lima-Hamilton Corp., and Denver & Rio Grande Western Railroad. Kidde will do a preliminary technical and economic study of a nuclear power plant, using a reactor that "differs radically" from those proposed for other projects, the companies stated. (Rio Grande and Baldwin-Lima have for some time been doing a joint study of feasibility of nuclear power as applied to locomotive propulsion. Kidde has now been called in to check conclusions and computations of the joint team, according to Gale B. Aydelott, Rio Grande president.) (Another study along related lines is underway at Nuclear Development Corp. of America, White Plains, N.Y. NDA has contract from the Transportation Corps, Department of the Army, on use of nuclear power in locomotives, tractors, and tugs. TC is particularly interested in tractors for land trains in Arctic regions.)

RECENT SALES BY MANUFACTURERS:- Stanat Manufacturing Co., L. I. City, New York, has completed and is shipping two new nuclear materials fabricating mills to the USAEC's Argonne National Laboratory, Lemont, Ill., where they will be used for experimental processing of plutonium, uranium, zirconium, beryllium, and thorium; and for training. The mills have a special transparent plastic airtight hood to contain the radiation. Stanat, a designer and manufacturer of special machinery, built the mills to USAEC specifications. Each mill cost $50,000 to the USAEC, plus $12,000 for electrical components, plus the hoods which Argonne is supplying. Stanat officials believe that such mills will find extensive commercial use for reprocessing spent fuel elements of reactors at nuclear power plants.

High Voltage Engineering Corp., Cambridge, Mass., has sold a 2-MEV Van de Graaff particle accelerator to the Junta de Energia Nuclear of Portugal. The machine will be installed and operated in a new facility planned for a location outside of Lisbon and used in research programs in nuclear physics, radiation chemistry, and in general studies of radiation effects.

ATOMIC PATENT DIGEST...

PATENT GRANTS TO PRIVATE INDIVIDUALS AND/OR ORGANIZATIONS:- Improvements in radiation detectors. U. S. Pat. No. 2,767,321 issued Oct. 16, 1956; assigned to Perkin-Elmer Corp., Norwalk, Conn. (Application date: Jan. 30, 1953.) (Inventor: E. H. Woodhull.)

Apparatus for detecting a repeated time distribution of neutrons. U. S. Pat. No. 2,767,324 issued Oct. 16, 1956; assigned to High Voltage Engineering Corp., Cambridge, Mass. (Application date: June 26, 1953.) (Inventor: R.J. Van de Graaff.)

Improvements in apparatus utilizing gamma rays for sub-surface exploration. U. S. Pat. No. 2,767,326 issued Oct. 16, 1956; assigned to Texaco Development Corp., New York. (Application date: May 21, 1952.) (Inventor: W. M. Stratford.)

PATENT GRANTS TO GOVERNMENT ORGANIZATIONS:- Process for recovery of plutonium from neutron-irradiated uranium. U. S. Pat. No. 2,767,044 issued Oct. 16, 1956; assigned to United States of America (USAEC). (Application date: Dec. 2, 1947.) (Inventors: O. F. Hill, S. G. Thompson.)

Treating phosphate rock to recover uranium and phosphorous, U. S. Pat. No. 2,767,045 issued Oct. 16, 1956; assigned to United States of America (USAEC). (Application date: Oct. 3, 1952. (Inventor: R. F. McCullough.)

Process of separating tantalum and niobium from each other. U. S. Pat. No. 2,767,047 issued Oct. 16, 1956; assigned to United States of America (USAEC). (Application date: Oct. 20, 1953.) (Inventors: H. A. Wilhelm, J. V. Kerrigan.)

ATOMIC ENERGY FINANCIAL NEWS...

ASSET INCREASE SHOWN BY MUTUAL FUND WITH INDUSTRIAL ATOMIC HOLDINGS:- Increase of 162% in total assets for the year ended Sept. 20, 1956 has been shown by Energy Fund, Inc., New York. Total assets rose to $2,579,156 from $981,545 on Sept. 30, 1955. The Fund is an open-end investment company specializing in the energy industries which produce, generate, transmit, market, control, etc., energy. Shares are sold at net asset value without sales or loading charges.

RECORD SALES & EARNINGS BY INDUSTRIAL FIRM:- Sylvania Electric Products, Inc., whose primary role in the atomic field is development and pilot production of atomic fuels and components, reported sales and earnings for first 9 months of 1956 greater than any comparable period in the company's history. Net sales for the period were over $232 million, about 8% greater than the approximately $216 million reported for the like period of 1955. Per share earnings for the nine months were $3.23, against $2.97 a year ago. Don G. Mitchell, president, told his shareholders that the many commercial atomic projects of Sylvania, both domestic and foreign, are "progressing steadily".

CONSTRUCTION OF NUCLEAR POWER REACTORS ABROAD TO BE FINANCED:- Export-Import Bank, and the USAEC, in a new joint program, will give assistance to atomic power projects abroad. For nations that have Agreements for Cooperation with the U.S., the bank will consider loans to privately-owned utilities, as well as to governments, to finance construction of nuclear power plants. Terms will be similar to those under which the bank has been financing conventional power plants abroad for the past 22 years.

URANIUM MINING FIRM FILES FOR NEW OFFERING:- Registration statement was filed last week by Northspan Uranium Mines, Ltd., with the Securities & Exchange Commission, covering proposed offering of $45 million of general mortgage bonds, due July 1, 1963, with common-share purchase warrants. Group making the offering will be headed by Model, Roland & Stone and Morgan, Stanley & Co. Financing is part of Northspan's overall plan to raise $70 million of new money to finance completion of its uranium mines and mills in the Blind River area, Ontario, Canada.

FAST TAX WRITE-OFF FOR NEW FACILITIES:- Titan Manufacturing Co., Bellefonte, Ohio, has been issued a fast write-off tax certificate of necessity by ODM for new zirconium processing facilities. Certificate was for $1,466,425 at 65%.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear energy subjects...

Atomic Energy in Canada, by Clyde C. Kennedy, Atomic Energy of Canada, Ltd. Interesting and comprehensive account (non-technical), for the lay reader. 96 pages. --Atomic Energy of Canada, Ltd., Chalk River, Ontario, Can. ($1.00).

Atomic Energy Technology for Lawyers, by E. Blythe Stason, Samuel D. Estep, and William J. Pierce, University of Michigan. Legal approach to the subject, clearly expounded. --University of Michigan, School of Law, Ann Arbor, Mich.

Radiation Damage to Elastomers, Plastics, and Organic Liquids, by C. G. Collins, and V. P. Calkins. Report of work done at the atomic products division, aircraft nuclear propulsion department, General Electric Co., Cincinnati, conducted under USAEC and U. S. Air Force contracts. 245 pages. --Office of Technical Services, Wash. 25, D.C. ($1.25)

The Promise of Calder Hall; supplement to the The Times (London), Oct. 17, 1956. Non-technical account of world's first nuclear power plant to furnish commercial electricity. --Times Pub. Co., Ltd., Printing House Sq., London E.C.4, England.

Atoms and People, by Ralph E. Lapp. A "popular" account of early work on atomic weapons, developments since then, commercial applications of atomic energy. 304 pages. --Harper & Bros., New York. ($4.00).

Possibilities of Action in Field of Nuclear Energy, by three members of Organization for European Economic Cooperation. A consideration of cooperation in this field by OEEC countries. --OEEC Wash. Mission, 2000 P St., N.W., Wash., D.C. ($1.00).

Process Chemistry (Progress in Nuclear Energy); edited by F. R. Bruce, et al. Selected papers on chemical processing methods employed by various countries at their atomic energy projects. Based on proceedings of Geneva Conference on Atomic Energy, Aug., 1955; also previously unpublished data. 407 pages. --McGraw-Hill Book Co., New York 36. ($12.00).

BIDS ASKED, CONTRACTS AWARDED...on nuclear projects...

BIDS ASKED:- Bids for construction of an off-gas storage facility at the national reactor testing station, Idaho Falls, Idaho, have been asked by the USAEC's operations office in Idaho Falls, under bid AT(10-1)-831. The facility will be used in connection with operations at the chemical processing plant at the station.

CONTRACTS AWARDED:- Martin Company's nuclear division, Baltimore, Md., has received contract from the USAEC to study and design a small heat source using the decay energy of reactor produced isotopes or reactor fission products. (By correct selection of isotopes, reliable and safe energy sources, weighing only a few pounds, may be possible. Such sources could deliver as high as 2,000 watts of heat energy, continuously, for periods up to five years. The concept is not new, but it is believed that it has not yet been exploited.)

Design and engineering of a nuclear research reactor for Kernenergie Hamburg is to be done by Babcock & Wilcox Co., New York, under contract recently received. Kernenergie, which is the Society for Utilization of Nuclear Energy in Shipbuilding & Navigation, Inc., Hamburg, Germany, looks ultimately to full scale nuclear power plant for ship use. The Society proposes to negotiate a separate contract with B&W, later this year, for manufacture and construction of this research reactor. (This is B&W's second recent contract award for projects related to development of nuclear energy for surface vessel propulsion. Under contract with U. S. Maritime Administration, the company is evaluating a pressurized water nuclear reactor propulsion system for merchant marine application.)

Letter contract has been received from U.S. Navy by Bethelhem Steel Co.'s Quincy, Mass., yard to prepare working plans for construction of the Navy's first nuclear powered surface vessel. The ship will be a guided missile cruiser, with total estimated cost of $87.5 million. The letter contract provides $2.5 million initially; when firm plans are available for construction, the letter contract will be converted to a fixed-price contract for construction. (Nuclear reactor power plant for the vessel is being furnished by Westinghouse Electric Corp., at an estimated cost of $18.335 million.)

Contract negotiations are underway between Aerojet-General Corp., Azusa, Calif., and the USAEC, for design, fabrication and operation by Aerojet of a gas-cooled reactor experiment at the national reactor testing station, Idaho Falls, Idaho. The firm's proposal was the most satisfactory of the 20 proposals made by U. S. firms in response to the USAEC's invitation of June 22nd, 1956.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- New uranium concentrate purchase contract, awarded Vitro Uranium Co., Salt Lake City, Utah, (div. of Vitro Corp. of America) by USAEC provides for increase in plant capacity, installation of new process, and extension of current contract until Mar. 1962. Present contract was due to expire Dec. 1958. In overhauling the plant and increasing capacity, at a cost of $1.2 million, Vitro will install a new and more efficient uranium extraction process known as the liquid-liquid solvent extraction process. Vitro processes ores from its own mines and from independent producers.

CANADA:- Eldorado Mining & Refining, Ltd., agency of the Canadian-government which purchases all Canadian uranium concentrates, is modifying and extending purchase contracts already arranged with certain Canadian uranium mines. The extensions apply to companies not yet in production and whose contracts did not allow for a full five years' write-off of pre-production and capital expenditures. These bigger contracts will go to Northspan Uranium, Milliken Lake Uranium, Stanleigh Uranium, and Stanrock Uranium (all in the Blind River area); and to Dyno Mines and Cavendish Mines (in the Bancroft area). Total dollar value of the increases is expected to exceed $100 million, over-all.

PEOPLE...in atomic energy work...

Charles Fox is newly appointed project engineer on the Martin nuclear-powered electrical generating system which the company's nuclear division is building for the Dominican Republic.

S. Allen Lough has been appointed deputy director of the USAEC's health and safety laboratory, New York. (The laboratory, among other projects, is headquarters of the USAEC's fallout monitoring system which analyzes samples collected in stations in the U.S. and at some 70 locations abroad.)

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURERS:- Advanced type of electromechanical manipulator, for remote handling of radioactive materials, utilizes closed circuit television, Apparatus consists of control unit electrically connected via cable to remote slave unit which is under observation of television scanning unit. Delivery is offered in 3-4 months. --Borg-Warner Corp., Chicago, Ill.

Gamma ray camera, designed to use cesium-137 or iridium-192 as radiation source, is said to produce, in use, a conical beam of radiation 60-deg. wide. Camera, which can accommodate 10 curies of cesium-137 or 20 curies of iridium-192, is offered in two models; type E-37 is manually operated, while type E-39 is fitted with remote controls. --Tracerlab, Inc., Boston, Mass.

New centrifugal blower, suggested for use in handling radioactive, corrosive, and toxic gases at high temperature and pressure, is said by its manufacturer to be completely leakproof. Designed to operate at gas temperatures up to 500-deg. F., blower is said to develop 150-ft. head in a 2,000-psi. system. --Allis-Chalmers Mfg. Co., Milwaukee, Wisc.

Thirty-eight widely used carbon-14 compounds are now offered by this processor in fifty microcurie package size. Under new USAEC licensing procedures, such quantities of carbon-14 may be obtained without formal USAEC license. --Volk Radiochemical Co., Chicago 40, Ill.

PROCESSES:- A uranium ore beneficiating process which, it is claimed, will take raw, below commercial grade uranium ores and reduce them to the desired level of uranium oxide content was described recently by H. O. English, Casper, Wyoming, president of Mountain Mesa Uranium Co. Mr. English said the process was developed exclusively for his firm by Maurice Tripp, of the Tripp Research Corp., Dallas, Tex.; the process requires no water, he noted, important in the arid, water-short Western regions where most uranium occurs.

The Hyrad process of irradiating polyethylene has been licensed exclusively to W. R. Grace & Co. by its developer, Sequoia Process Corp., Redwood City, Calif. The process modifies and improves the plastic and is said to give it superior resistance to heat, to reduce cold flow cracking, and to increase its strength without impairing its electrical insulating properties. (Originally considered valuable for improving polyethylene for electrical insulating applications, Grace feels the process may be successfully applied to containers, piping and similar products. Meanwhile, Sequoia will add a fifth electron-beam generator, which it uses as radiation producer, at its new Kansas City, Mo., plant. It is believed the composition of the polyethylene molding powder, in the Hyrad process, differs from standard formulas used for conventional polyethylene production. Another irradiated polyethylene, Irrathene, being produced by the Chemical Development Dept., General Electric Co., Pittsfield, Mass., is described in a 12-p. bulletin the company offers.)

Details have been revealed by three of the seven companies which submitted proposals to produce uranium salts for the USAEC (this LETTER, Oct. 16, 1956, p. 2). By Jan. 1st, 1957 USAEC said it will complete its evaluation of the various proposals. Proposal by Climax Molybdenium and Mallinckrodt (jointly) would see the firms building a $22 million, 5,000-tons per year plant at Henderson, Ky. The Koppers Co.-Kennecott Co., proposal (jointly) entails a $50 million plant in Pueblo, Colo., or Paducah, Ky., to produce 5,000-tons per year. Another proposal, that of Vitro Corp., will involve a $5 million plant to produce 2,000-tons per year of uranium tetrafluoride at Salt Lake City. Vitro will use the Excer process which allows economies in construction (and production) and hence can enable smaller capital outlay.

Industrial fixation of nitrogen has been projected by research people from Rensselaer Polytechnic Institute who have been doing work on the subject at Brookhaven National Laboratory. In the process, hot compressed air is said to be speedily and economically converted into nitrogen oxides, after being exposed to fission recoil energy of uranium-235. RPI people project a $20 million nuclear reactor, using $6 million of uranium-235 per year. This, they say, could produce 70,000-tons of nitrogen dioxide, 30,000-tons of nitrous oxide and usable process heat equivalent to that from 500,000 tons of coal.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER